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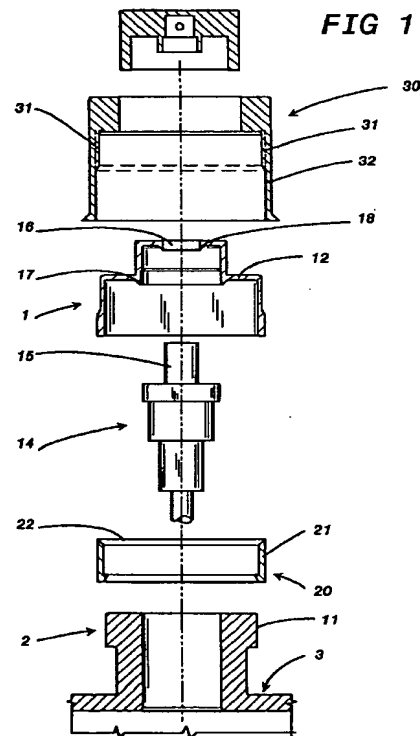
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(54) **Device for fixing delivery units such as pumps, valves and the like onto the flanged necks of flasks and the like**

(57) The present invention relates to a device for fixing delivery units such as pumps, valves and the like, onto the flanged necks of flasks and the like, having the special feature that it comprises a sleeve which can be applied to a flanged neck of a flask and housing inside it a delivery unit. Said sleeve has a cylindrical lining projecting axially with respect to the flanging of the neck. There is also provided a washer with a cylindrical rim which can be engaged with the free edge of said lining so as to cause, upon axial compression of said sleeve, the deformation of the material forming the free edge of said lining with its consequent compaction underneath said flanging.



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## Description

The present invention relates to a device for fixing delivery units such as pumps, valves and the like onto the flanged necks of flasks and the like.

As is known, in order to fix the delivery units such as spray pumps, valves and "splash" units, use is currently made of equipment which is of considerable complexity, requiring the crimping and the rolling of an element which is applied around the flanged neck of the flask so as to retain the delivery unit.

Other known solutions, such as for example those illustrated in the patent US 4,773,553 use an element made of plastic material which is positioned around the neck and which is deformed by a sleeve surrounding it, in the bottom part of the plastic, so as to be clamped and sealed to the neck of the flask, this system creating additional problems associated with the tolerances of the glass materials and the fact that the system for self-locking of the piece is very limited.

Another system illustrated in the patent US 5,299,703 uses flanges for effecting locking underneath the upper edge of the neck by means of a deformation system with recesses or folds in the top part made of metal which coincide with the bottom end of the internal piece, ensuring an effective and real self-locking action.

This embodiment, although valid from a conceptual point of view, currently encounters practical problems such as the notable difficulty of construction of the metal piece, since the cost of the piece itself would not absorb the usual production costs.

The task set by the invention is precisely that of eliminating the drawbacks mentioned above by providing a device for fixing a delivery unit such as pumps, valves and the like onto the flanged necks of flasks and the like, which provides the possibility of simplifying considerably all the equipment necessary for application and moreover the certainty of a stable connection, while compensating for any tolerances in processing of the glass materials which form the flanged neck.

Within the scope of the aforementioned task a particular object of the present invention is that of providing a device for fixing delivery units which provides the possibility of applying an external covering element which may be of any shape considered appropriate, being able to be realized using normal industrial processing techniques.

Yet another object of the present invention is that of providing a device for fixing delivery units such as pumps, valves and the like which, owing to its special constructional features, is able to provide the maximum guarantee as to reliability and safety during use.

Last but not least, another object of the present invention is that of providing a device which can be easily obtained from components and materials which are generally available commercially and which, moreover, is competitive from a purely economic point of view.

The aforementioned task, as well as the objects mentioned and others which will emerge more clearly

below, are achieved by means of a device for fixing delivery units such as pumps, valves and the like, onto the flanged bodies of flasks and the like, characterized in that it comprises a sleeve which can be applied to a flanged neck of a flask and housing inside it a delivery unit, said sleeve having a cylindrical lining projecting axially with respect to the flanging of said neck, there also being provided a washer with a cylindrical rim which can be engaged with the free edge of said lining so as to cause, upon axial compression of said sleeve, the deformation of the material forming the free edge of said lining with its consequent compaction underneath said flanging.

Further characteristic features and advantages will emerge more clearly from the description of a preferred, but not exclusive embodiment of a device for fixing a delivery unit such as pumps, valves and the like onto the flanged necks of flasks and the like, illustrated by way of a non-limiting example with the aid of the accompanying drawings, in which:

Figure 1 shows schematically the device, according to the invention, viewed in cross-section and in exploded form;

Figure 2 shows the bush viewed from one end;

Figure 3 shows schematically the initial phase of coupling of the device with a neck;

Figure 4 shows in cross-section the intermediate phase of application, with the start of deformation of the free edge of the lining;

Figure 5 shows schematically in cross-section the device fixed to the flask.

With reference to the said figures, the device for fixing a delivery unit such as pumps, valves and the like onto the flanged necks of flasks and the like, according to the invention, comprises a sleeve 1 which can be applied onto the flanged neck 2 of a flask or the like generally denoted by 3.

The sleeve 1 has a cylindrical lining 10 which can be positioned around the flanging 11 of the neck and has an axial length greater than the axial length of the flanging.

At the top the lining 10, via a shoulder 12, is joined to a cylindrical tang 13 which is designed to be coupled to a delivery unit consisting, for example, of a pump 14, the delivery stem 15 of which emerges from an axial hole 16 in the tang 13.

An important feature of the invention consists in the fact that the sleeve 1 is designed both to house inside it the delivery unit 14 and to ensure a perfect sealing action with respect to the delivery unit and the neck 2.

In order to achieve the sealing action, a lower lip 17 is provided in the zone connecting the shoulder 12 and the tang 13 which engages sealingly with the top part of the neck 2, while the seal with the delivery unit is achieved by an upper lip 18 which surrounds the hole 16.

A washer, denoted generally by the reference

number 20, is provided opposite the sleeve 10, having a cylindrical rim 21 with a chamfer 22 at the end directed towards the lining 10.

The washer 20 can be applied around the body 2 and engages with the body of the flask 3, acting as an abutment element.

According to a preferred embodiment the sleeve 10 is pre-inserted into a bush 30 which defines inside it projections 31 which extend over a certain axial distance and which in practice allow coupling with the sleeve 10.

Similarly the washer 20 can be inserted by means of simple forcing in the region of the free edge of the cylindrical surface 32 of the bush, remaining at a distance from the free edge of the sleeve 10.

The bush 30 is advantageously made of a zinc/aluminium/magnesium alloy so as to have externally any shape considered suitable.

During application of the device to the flask, an axial compression action is exerted, as shown in Figure 3, and this action, when the washer 20 abuts against the body of the flask 3, causes a deformation of the free edge of the lining 10, generated by the washer itself with compaction of the excess material underneath the flanging 11, a compaction which, as shown in succession in Figures 4 and 5, results in perfect clamping of the device with a consequent precise sealing action.

According to another embodiment which is conceptually linked to the embodiment described above, instead of using the bush 30, which forms a covering element in addition to an element for retaining the sleeve and the washer, it is possible to use a removable punch which performs deformation of the free edge of the lining with consequent clamping onto the neck.

It is important to note that, with this type of construction, secure and stable clamping is obtained, independently of any variations in tolerances of the glass materials, there also being considerable rapidity of application owing to the fact that the delivery unit is connected beforehand to the sleeve and not to the flask.

Moreover, via a single operation, in addition to obtaining clamping and fixing of the delivery unit onto the neck of the bottle, the sealing action resulting from the lips 18 and 17 is achieved.

For the sake of completeness of the description, it must also be added that the normal pushbutton, denoted by the reference number 40, may be applied onto the stem 15 of the pump.

The invention thus conceived is susceptible to numerous modifications and variations, all of which fall within the scope of the inventive idea.

Moreover, all the details may be replaced by other technically equivalent elements.

In practice the materials used, as well as the dimensions and contingent forms, may be of any type depending on requirements.

## Claims

1. Device for fixing delivery units such as pumps, valves and the like onto the flanged necks of flasks and the like, characterized in that it comprises a sleeve which can be applied to the flanged neck of a flask and housing inside it a delivery unit, said sleeve having a cylindrical lining projecting axially with respect to the flanging of said neck, there also being provided a washer with a cylindrical rim which can be engaged with the free edge of said lining so as to cause, upon axial compression of said sleeve, the deformation of the material forming the free edge of said lining with its consequent compaction underneath said flanging.
2. Device according to the preceding claim, characterized in that it comprises a bush inside which said sleeve can be removably inserted, said washer being able to be inserted by means of forcing in the region of the free edge of the cylindrical surface of said bush.
3. Device according to the preceding claims, characterized in that said bush has, on at least a portion of its internal lateral surface, projections for engagement with said sleeve.
4. Device according to one or more of the preceding claims, characterized in that said bush is made of a zinc/aluminium/magnesium alloy.
5. Device according to one or more of the preceding claims, characterized in that it comprises a removable punch for performing deformation of said sleeve, said punch being able to be extracted once deformation has been completed.
6. Device according to one or more of the preceding claims, characterized in that said sleeve is designed to achieve sealing with respect to the flanged neck of the flask and with respect to the delivery unit.
7. Device according to one or more of the preceding claims, characterized in that said sleeve has a cylindrical lining which can be positioned around the flanging of the neck and having an axial length greater than the axial length of said flanging, said lining at the top being connected, via a shoulder, to a cylindrical tang which can be coupled to the delivery unit.
8. Device according to one or more of the preceding claims, characterized in that said sleeve has inside it a lower lip which can be sealingly coupled with the upper part of the flask neck and a lower lip surrounding the exit hole for the stem of the delivery unit and sealingly engageable with the delivery unit.

9. Delivery unit according to one or more of the preceding claims, characterized in that said washer, in the region of free end of said cylindrical rim, has a chamfer directed towards said lining so as to act as a guiding element for compaction of the deformed material underneath the flanging of the neck.

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FIG 1

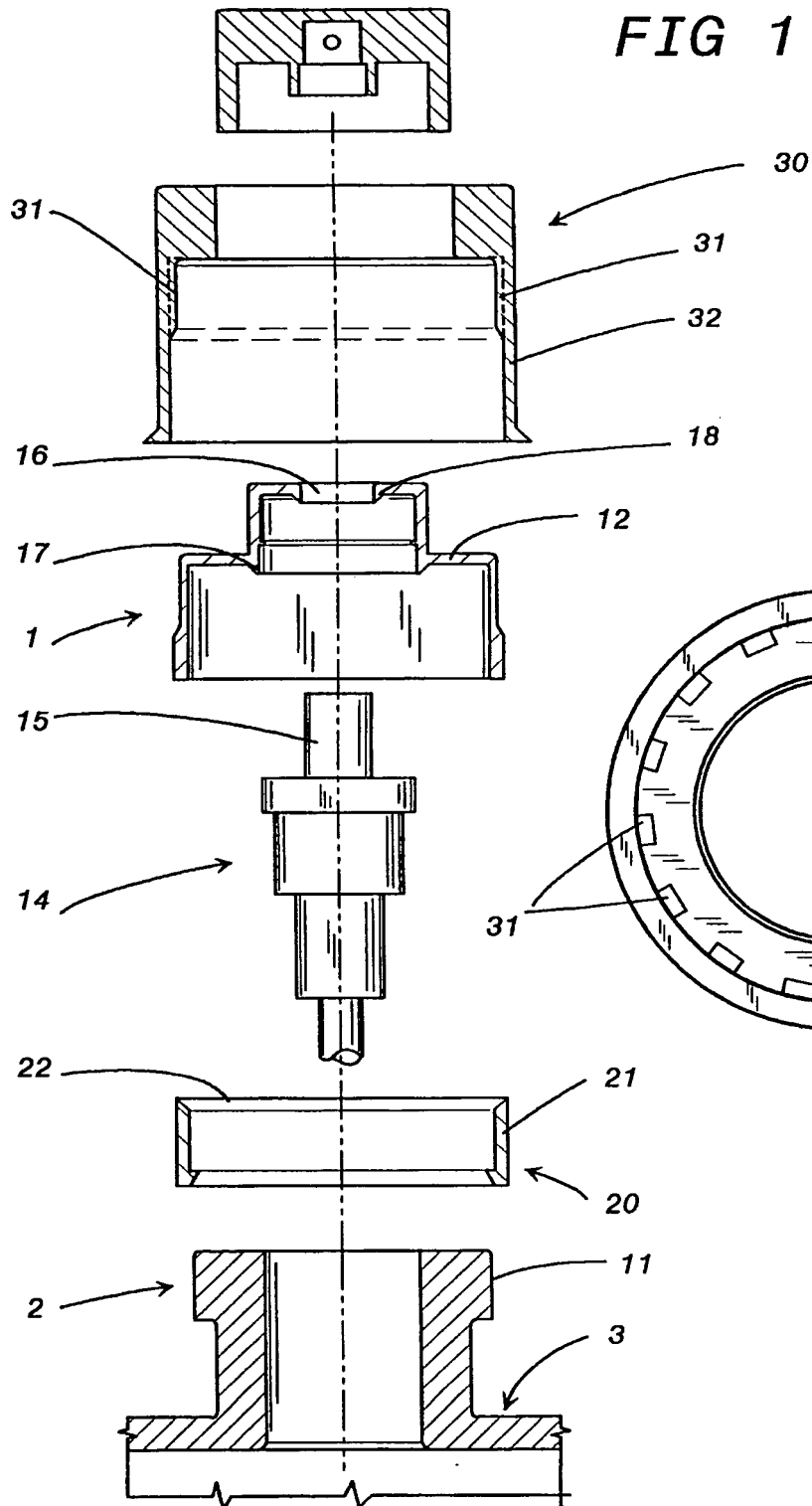
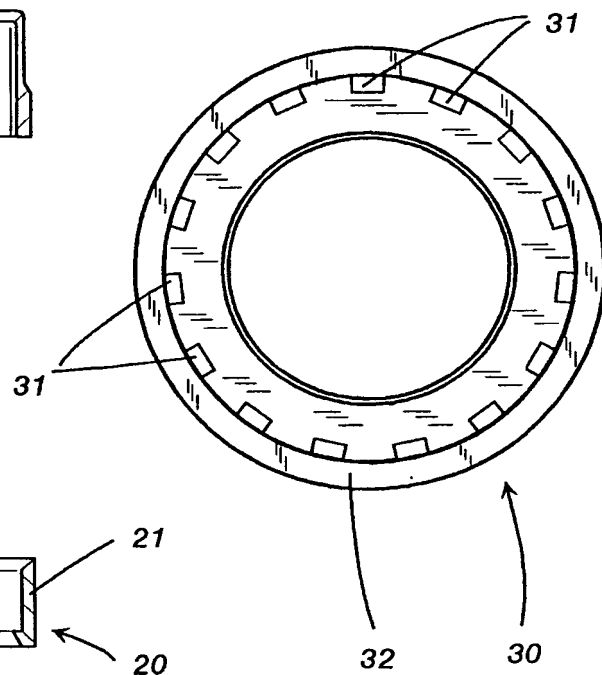
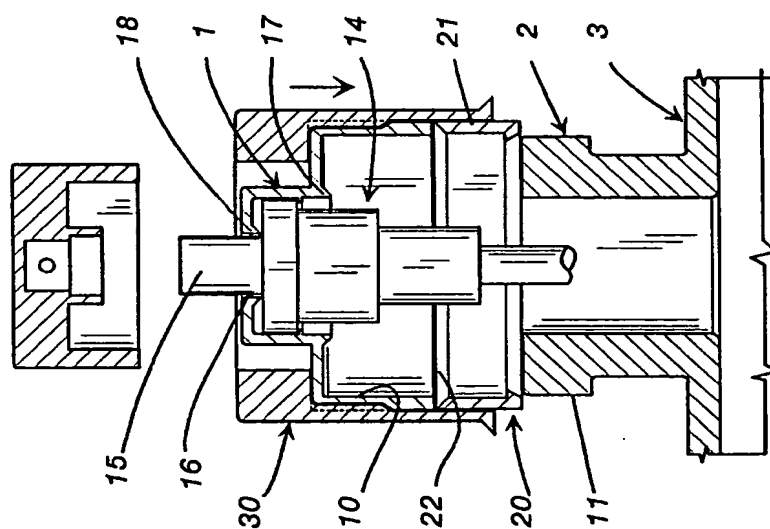


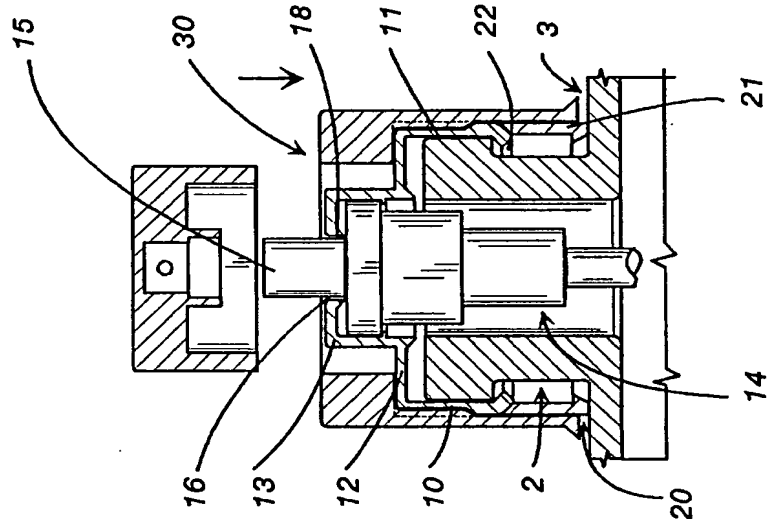
FIG 2



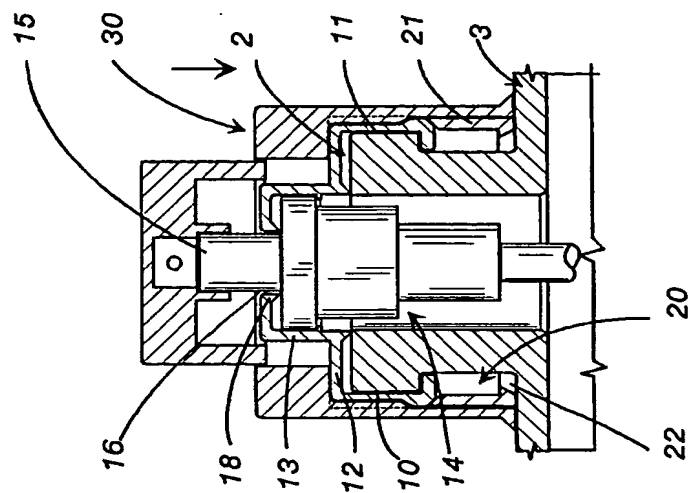
**FIG 3**



**FIG 4**



**FIG 5**





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## EUROPEAN SEARCH REPORT

Application Number  
EP 96 83 0261

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A,D	WO-A-88 02297 (RISDON CORP) 7 April 1988 * page 7, line 23 - page 9, line 22; figures 1,2 *	1	B05B11/00
A,D	US-A-5 348 174 (VELICKA ALVYDAS) 20 September 1994 * column 3, line 49 - column 5, line 2; figures 1,2 *	1	
A	US-A-5 299 703 (CATER MIRO S) 5 April 1994 * column 2, line 64 - column 3, line 33; figures 1,2 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B05B
Place of search		Date of completion of the search	Examiner
MUNICH		29 October 1996	Innecken, A
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